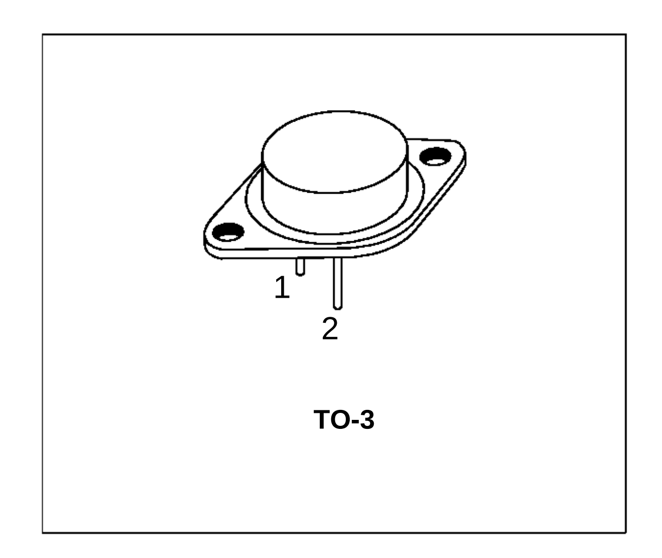


BUT100

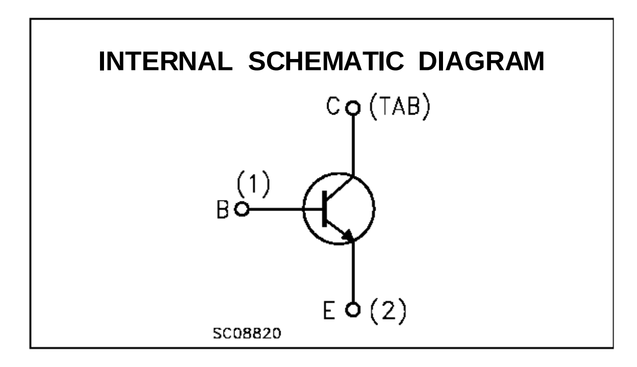
HIGH POWER NPN SILICON TRANSISTOR

- HIGH EFFICIENCY SWITCHING
- VERY LOW SATURATION VOLTAGE
- RECTANGULAR SAFE OPERATION AREA
- WIDE ACCIDENTAL OVERLOAD AREA

DESCRIPTION
Suitable for motor drivers, SMPS converters, uninterruptable power supply operating low voltage supply.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-Emitter Voltage (V_{BE} = -1.5V)	200	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	125	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7	V
I_E	Emitter Current	50	A
I_{EM}	Emitter Peak Current	150	A
I_B	Base Current	10	A
I_{BM}	Base Peak Current	30	A
P_{tot}	Total Dissipation at T_c < 25 ^oC	300	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Max. Operating Junction Temperature	200	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	0.58	$^oC/W$

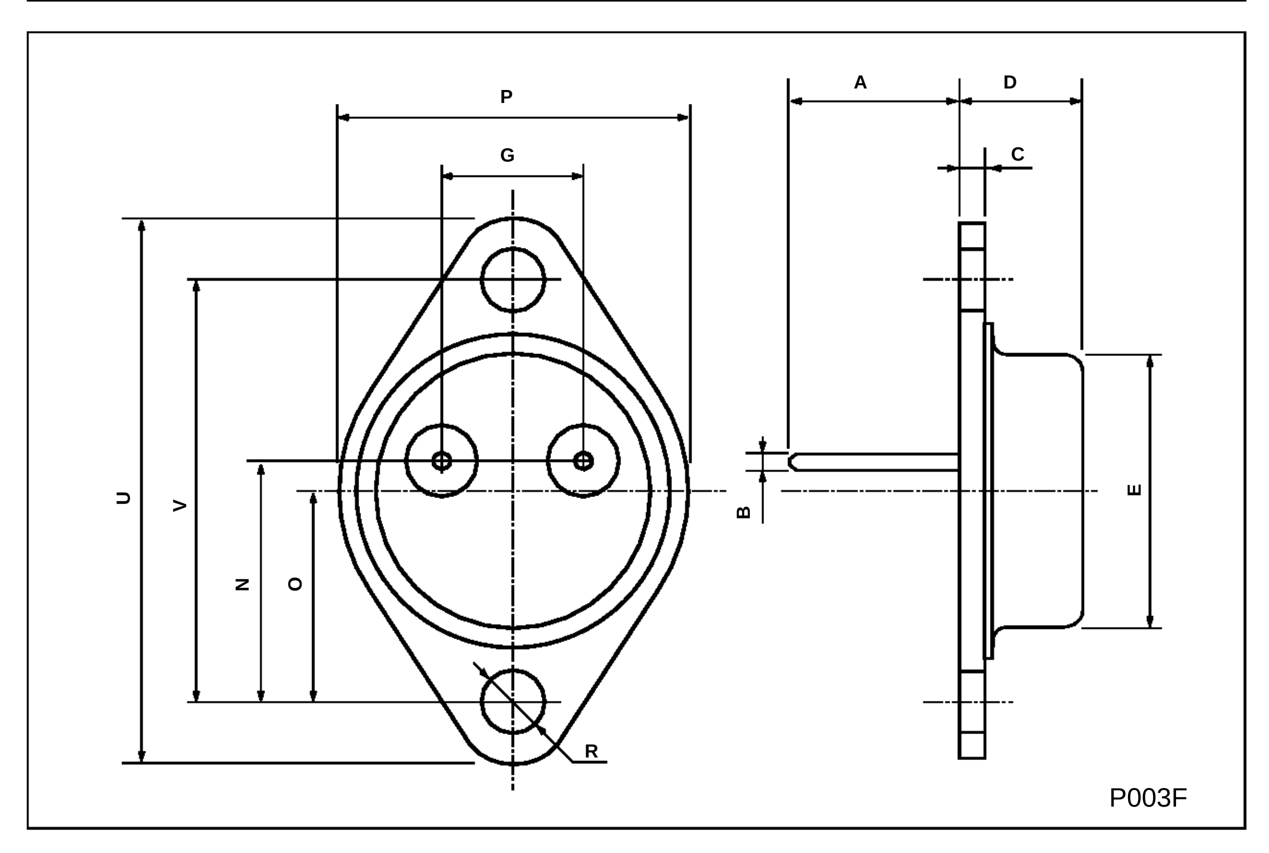
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current (R_{BE} = 5Ω)	V_{CE} = V_{CEV} V_{CE} = V_{CEV} T_C= 100^oC			1 5	mA mA
I_{CEV}	Collector Cut-off Current	V_{CE} = V_{CEV} V_{BE} = -1.5V V_{CE} = V_{CEV} V_{BE} = -1.5V TC = 100^oC			1 4	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 0.2mA L = 25mH	125			V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	I_E = 50mA	7			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 50A I_B = 2.5A I_C = 100A I_B = 10A I_C = 50A I_B = 2.5A T_j = 100^oC I_C = 100A I_B = 10A T_j = 100^oC			0.9 0.9 1.2 1.5	V V V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 50A I_B = 2.5A I_C = 100A I_B = 10A I_C = 50A I_B = 2.5A T_j = 100^oC I_C = 100A I_B = 10A T_j = 100^oC			1.4 2 1.4 2.1	V V V V
di_c/dt	Rate of Rise of on-state Collector Current	VCC = 100V R_C = 0 I_{B1} = 5A T_p = 3μs T_j = 100^oC	180			A/μs
 t_s t_f t_c	INDUCTIVE LOAD Storage time Fall Time Crossover Time	V_{CC} = 90V V_{clamp} = 125 V I_C = 50A I_{B1} = 2.5A V_{BB} = - 5V L_C = 80μH R_{B2} = 1 Ω T_j = 100^oC			 2 0.2 0.35	 μs μs μs
V_{CEW}	Maximum Collector Emitter Voltage without Snubber	V_{CC} = 90V I_{CWoff} = 150A V_{BB} = - 5V I_{B1} = 10A L_C = 30μH R_{B2} = 1Ω T_j = 125^oC	125			V

∗ Pulsed: Pulse duration = 3μs, duty cycle = 2 %

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193




SGS-THOMSON
MICROELECTRONICS